In 1999, the TV movie *Shark Attack* depicted an attack by mutant great white sharks on the population of Cape Town. By the time the third entry in the series, *Shark Attack 3*, aired in 2002, mutant great whites had lost their lustre and were replaced as antagonists with the megalodon: a giant shark originating not in any laboratory, but history, having lived from approximately 23 to 3.6 million years ago. The megalodon was resurrected again in May 2021 through a trifecta of events. A video of a basking shark encounter in the Atlantic went viral on the social media platform TikTok, due to users misidentifying it as a megalodon caught on tape. At the same time a boy received publicity for finding a megalodon tooth on a beach in South Carolina on his fifth birthday (Scott). And finally, the video game *Stranded Deep*, in which a megalodon is featured as a major enemy, was released as one of the monthly free games on the PlayStation Plus gaming service.

These examples form part of a larger trend of alleged megalodon sightings in recent years, emerging as a component of the modern resurgence of cryptozoology. In the words of Bernard Heuvelmans, the Belgian zoologist who both popularised the term and was a leading figure of the field, cryptozoology is the "science of *hidden* animals", which he further explained were

> more generally referred to as 'unknowns', even though they are typically known to local populations—at least sufficiently so that we often indirectly know of their existence, and certain aspects of their appearance and behaviour. It would be better to call them animals 'undescribed by science,' at least according to prescribed zoological rules. (1-2)

In other words, a large aspect of cryptozoology as a field is taking the legendary creatures of non-Western mythology and finding materialist explanations for them compatible with Western biology. In many ways, this is a relic of the era of European imperialism, when many creatures of Africa and the Americas were "*hidden* animals" to European eyes (Dendle 200-01; Flores 557; Guimont). A major example of this is Bigfoot beliefs, a large subset of which took Native American legends about hairy wild men and attempted to prove that they were actually sightings of relict Gigantopithecus. These "*hidden* animals"—Bigfoot, Nessie, the chupacabra, the glawackus—are referred to as 'cryptids' by cryptozoologists (Regal 22, 81-104).

Almost unique in cryptozoology, the megalodon is a cryptid based entirely on Western scientific development, and even the notion that it survives comes from standard scientific analysis (albeit analysis which was later superseded). Much like living mammoths and Bigfoot, what might be called the 'megalodon as cryptid hypothesis' serves to reinforce a fairy tale of its own. It reflects the desire to believe that there are still areas of the Earth untouched enough by human destruction to sustain massive animal life (Dendle 199-200). Indeed, megalodon's continued existence would help absolve humanity for the oceanic aspect of the Sixth Extinction, by its role as an alternative apex predator; cryptozoologist Michael Goss even proposed that whales and giant squids are rare not from human causes, but precisely because megalodons are feeding on them (40). Horror scholar Michael Fuchs has pointed out that shark media, particularly the 1975 film *Jaws* and its 2006 video game adaptation *Jaws Unleashed*, are imbued with eco-politics (Fuchs 172-83). These connections, as well as the modern megalodon's surge in popularity, make it notable that none of Syfy's climate change-focused *Sharknado* films featured a megalodon.

Despite the lack of a *Megalodonado*, the popular appeal of the megalodon serves as an important case study. Given its scientific origin and dynamic relationship with popular culture, I argue that the 'megalodon as cryptid hypothesis' illustrates how the boundaries between 'hard' science and mythology, fiction and reality, as well as 'monster' and 'animal', are not as firm as advocates of the Western science tradition might believe. As this essay highlights, science can be a mythology of its own, and monsters can serve as its gods of the gaps—or, in the case of megalodon, the god of the depths.

Megalodon Fossils: A Short History

Ancient peoples of various cultures likely viewed fossilised teeth of megalodons in the area of modern-day Syria (Mayor, *First Fossil Hunters* 257). Over the past 2500 years, Native American cultures in North America used megalodon teeth both as curios and cutting tools, due to their large size and serrated edges. A substantial trade in megalodon teeth fossils existed between the cultures inhabiting the areas of the Chesapeake Bay and Ohio River Valley (Lowery et al. 93-108). A 1961 study found megalodon teeth present as offerings in pre-Columbian temples across Central America,

including in the Mayan city of Palenque in Mexico and Sitio Conte in Panama (de Borhegyi 273-96). But these cases led to no mythologies incorporating megalodons, in contrast to examples such as the Unktehi, a Sioux water monster of myth likely inspired by a combination of mammoth and mosasaur fossils (Mayor, *First Americans* 221-38).

In early modern Europe, megalodon teeth were initially referred to as 'tongue stones', due to their similarity in size and shape to human tongues—just one of many ways modern cryptozoology comes from European religious and mystical thought (Dendle 190-216). In 1605, English scholar Richard Verstegan published his book *A Restitution of Decayed Intelligence in Antiquities*, which included an engraving of a tongue stone, making megalodon teeth potentially the subject of the first known illustration of any fossil (Davidson 333). In Malta, from the sixteenth through eighteenth centuries, megalodon teeth, known as 'St. Paul's tongue', were used as charms to ward off the evil eye, dipped into drinks suspected of being poisoned, and even ground into powder and consumed as medicine (Zammit-Maempel, "Evil Eye" plate III; Zammit-Maempel, "Handbills" 220; Freller 31-32).

While megalodon teeth were valued in and of themselves, they were not incorporated into myths, or led to a belief in megalodons still being extant. Indeed, save for their size, megalodon teeth were hard to distinguish from those of living sharks, like great whites. Instead, both the identification of megalodons as a species, and the idea that they might still be alive, were notions which originated from extrapolations of the results of nineteenth and twentieth century European scientific studies. In particular, the major culprit was the famous British 1872-76 HMS *Challenger* expedition, which led to the establishment of oceanography as a branch of science.

In 1873, *Challenger* recovered fossilised megalodon teeth from the South Pacific, the first recovered in the open ocean (Shuker 48; Goss 35; Roesch). In 1959, the zoologist Wladimir Tschernezky of Queen Mary College analysed the teeth recovered by the *Challenger* and argued (erroneously, as later seen) that the accumulation of manganese dioxide on its surface indicated that one had to have been deposited within the last 11,000 years, while another was given an age of 24,000 years (1331-32). However, these views have more recently been debunked, with megalodon extinction occurring

over two million years ago at the absolute latest (Pimiento and Clements 1-5; Coleman and Huyghe 138; Roesch).

Tschernezky's 1959 claim that megalodons still existed as of 9000 BCE was followed by the 1963 book *Sharks and Rays of Australian Seas*, a posthumous publication by ichthyologist David George Stead. Stead recounted a story told to him in 1918 by fishermen in Port Stephens, New South Wales, of an encounter with a fully white shark in the 115-300 foot range, which Stead argued was a living megalodon. That this account came from Stead was notable as he held a PhD in biology, had founded the Wildlife Preservation Society of Australia, and had debunked an earlier supposed sea monster sighting in Sydney Harbor in 1907 (45-46). The Stead account formed the backbone of cryptozoological claims for the continued existence of the megalodon, and after the book's publication, multiple reports of giant shark sightings in the Pacific from the 1920s and 1930s were retroactively associated with relict megalodons (Shuker 43, 49; Coleman and Huyghe 139-40; Goss 40-41; Roesch).

A Monster of Science and Culture

As I have outlined above, the 'megalodon as cryptid hypothesis' had as its origin story not in Native American or African myth, but Western science: the *Challenger* Expedition, a London zoologist, and an Australian ichthyologist. Nor was the idea of a living megalodon necessarily outlandish; in the decades after the *Challenger* Expedition, a number of supposedly extinct fish species had been discovered to be anything but. In the late 1800s, the goblin shark and frilled shark, both considered 'living fossils', had been found in the Pacific (Goss 34-35). In 1938, the coelacanth, also believed by Western naturalists to have been extinct for millions of years, was rediscovered (at least by Europeans) in South Africa, samples having occasionally been caught by local fishermen for centuries. The coelacanth in particular helped give scientific legitimacy to the idea, prevalent for decades by that point, that living dinosaurs—associated with a legendary creature called the mokele-mbembe—might still exist in the heart of Central Africa (Guimont). In 1976, a US Navy ship off Hawaii recovered a megamouth shark, a deep-water species completely unknown prior. All of these oceanic discoveries gave credence to the idea that the megalodon might also still survive (Coleman and Clark 66-68, 156-57; Shuker 41; Goss 35; Roesch). Indeed, Goss has noted that prior to

1938, respectable ichthyologists were more likely to believe in the continued existence of the megalodon than the coelacanth (39-40).

Of course, the major reason why speculation over megalodon survival had such public resonance was completely unscientific: the already-entrenched fascination with the fact that it had been a locomotive-sized killer. This had most clearly been driven home by a 1909 display at the American Museum of Natural History in New York City. There, Bashford Dean, an ichthyologist at the museum, reconstructed an immense megalodon jaw, complete with actual fossil teeth. However, due to the fact that Dean assumed that all megalodon teeth were approximately the same size as the largest examples medially in the jaws, Dean's jaw was at least one third larger than the likely upper limit of megalodon size. Nevertheless, the public perception of the megalodon remained at the 80-foot length that Dean extrapolated, rather than the more realistic 55-foot length that was the likely approximate upper size (Randall 170; Shuker 47; Goss 36-39). In particular, this inaccurate size estimate became entrenched in public thought due to a famous photograph of Dean and other museum officials posing inside his reconstructed jaw—a photograph which appeared in perhaps the most famous piece of shark fiction of all time, Steven Spielberg's 1975 film *Jaws*.

As it would turn out, the megalodon connection was itself a relic from the movie's evolutionary ancestor, Peter Benchley's novel, *Jaws,* from the year before. In the novel, the Woods Hole ichthyologist Matt Hooper (played by Richard Dreyfuss in the film) proposes that megalodons not only still exist, but they are the same species as great white sharks, with the smaller size of traditional great whites being due to the fact that they are simply on the small end of the megalodon size range (257-59). Benchley was reflecting on what was then the contemporary idea that megalodons likely resembled scaled-up great white sharks; something which is no longer as accepted. This was particularly notable as a number of claimed sightings stated that the alleged megalodons were larger great whites (Shuker 48-49), perhaps circuitously due to the *Jaws* influence. However, Goss was apparently unaware of Benchley's linkage when he noted in 1987 (incidentally the year of the fourth and final *Jaws* movie) that to a megalodon, "the great white shark of *Jaws* would have been a stripling and perhaps a between-meals snack" (36).

The publication of the *Jaws* novel led to an increased interest in the megalodon amongst cryptozoologists (Coleman and Clark 154; Mullis, "Cryptofiction" 246). But even so, it attracted rather less attention than other cryptids. From 1982-98, Heuvelmans served as president of the International Society of Cryptozoology, whose official journal was simply titled *Cryptozoology*. The notion of megalodon survival was addressed only once in its pages, and that as a brief mention in a letter to the editor (Raynal 112). This was in stark contrast to the oft-discussed potential for dinosaurs, mammoths, and Neanderthals to remain alive in the present day. In 1991, prominent British cryptozoologist Karl Shuker published an article endorsing the idea of extant megalodons (46-49). But this was followed by a 1998 article by Ben S. Roesch in *The Cryptozoology Review* severely criticising the methodology of Shuker and others who believed in the megalodon's existence (Roesch).

Writing in 1999, Loren Coleman and Jerome Clark, arguably the most prominent post-Heuvelmans cryptozoologists, were agnostic on the megalodon's survival (155). The British palaeozoologist Darren Naish, a critic of cryptozoology, has pointed out that even if Shuker and others are correct and the megalodon continues to live in deep sea crevasses, it would be distinct enough from the historical surface-dwelling megalodon to be a separate species, to which he gave the hypothetical classification *Carcharocles modernicus* (Naish). And even the public fascination with the megalodon has its limits: at a 24 June 2004 auction in New York City, a set of megalodon jaws went on sale for $400,000, but were left unpurchased (Couzin 174).

New Mythologies

The 'megalodon as cryptid hypothesis' is effectively a fairy tale born of the blending of science, mythology, and most importantly, fiction. Beyond *Jaws* or *Shark Attack 3*—and potentially having inspired the latter (Weinberg)—perhaps the key patient zero of megalodon fiction is Steve Alten's 1997 novel *Meg: A Novel of Deep Terror*, which went through a tortuous development adaptation process to become the 2018 film *The Meg* (Mullis, "Journey" 291-95). In the novel, the USS *Nautilus*, the US Navy's first nuclear submarine and now a museum ship in Connecticut, is relaunched in order to hunt down the megalodon, only to be chomped in half by the shark. This is a clear allusion to Jules Verne's *20,000 Leagues under the Sea* (1870), where his *Nautilus* (namesake of the

real submarine) is less successfully attacked by a giant cuttlefish (Alten, *Meg* 198; Verne 309-17). Meanwhile, in Alten's 1999 sequel *The Trench*, an industrialist's attempts to study the megalodon are revealed as an excuse to mine helium-3 from the seafloor to build fusion reactors, a plot financed by none other than a pre-9/11 Osama bin Laden in order to allow the Saudis to take over the global economy, in the process linking the megalodon with a monster of an entirely different type (Alten, Trench 261-62).

In most adaptations of Verne's novel, the cuttlefish that attacks the *Nautilus* is replaced by a giant squid, traditionally seen as the basis for the kraken of Norse myth (Thone 191). The kraken/giant squid dichotomy is present in the video game *Stranded Deep*. In it, the player's unnamed avatar is a businessman whose plane crashes into a tropical sea, and must survive by scavenging resources, crafting shelters, and fighting predators across various islands. Which sea in particular does the player crash into? It is hard to say, as the only indication of specific location comes from the three 'boss' creatures the player must fight. One of them is Abaia, a creature from Melanesian mythology; another is Lusca, a creature from Caribbean mythology; the third is a megalodon. Lusca and Abaia, despite being creatures of mythology, are depicted as a giant squid and a giant moray eel, respectively. But the megalodon is portrayed as itself. *Stranded Deep* serves as a perfect distillation of the megalodon mythos: the shark is its own mythological basis, and its own cryptid equivalent.

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